LEASING AS A FINANCING ALTERNATIVE FOR THE WASHINGTON TOWNSHIP FIRE DEPARTMENT

FINANCIAL MANAGEMENT

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ABSTRACT

The problem was identifying the best method for financing the purchase of a new fire engine for the Washington Township Fire Department. The purpose of the research project was to determine how decisions concerning financing options, specifically leasing versus borrowing or using cash, were made so that these principals could be applied to determine the best option for Washington Township's purchases of capital assets. The research method used for the study was evaluative. Three basic research questions were answered. What does a fire department executive need to know about leasing? What are the financial advantages of leases versus borrowing or paying cash? Which funding alternative is best for the purchase of a new fire engine for the Washington Township Fire Department?

The research procedure began with a literature review. An interview with the Township Trustee was conducted. A cost analysis of financing alternatives was completed.

The research indicated that there are certain benefits to leasing of which fire department executives should be aware. Hedging against inflation, reduced financing costs, obsolescence, flexibility, improved cash flows and taxpayer equity were advantages cited. Leasing is not the right financing option for every situation. If a lease seems advantageous, then a cost analysis of financing alternatives should be conducted.

The study concluded that the department should borrow funds for the purchase of the new fire engine and leave accumulated cash in an interest bearing account. Funds could be borrowed at a lower interest rate than was available with a lease-purchase agreement. Cash reserves were earning at a higher rate of interest than the interest on the

loan. While the study concluded that leasing was not the best financing alternative for the purchase of the fire engine, it indicated that there were other capital asset acquisitions where leasing should be considered.

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INTRODUCTION

The problem is identifying the best method for financing the purchase of a new fire engine for the Washington Township Fire Department. The Fire Chief of the Department must insure that limited financial resources are utilized in the most efficient way possible. The methods available include a cash purchase, borrowing or leasing. In the past, the department has primarily used accumulated funds and some limited borrowing to acquire capital assets. Leasing has not been utilized. In order to identify the best methods and strategies for financing capital asset purchases, research is necessary. The purpose of this research project is to determine how decisions concerning financing options, specifically leasing versus borrowing or using cash, are made so that these principals can be applied to determine the best option for Washington Township's purchases of capital assets. The research method for the study is evaluative.

There are three basic research questions. What does a fire department executive need to know about leasing? What are the financial advantages of leases versus borrowing or paying cash? Which funding alternative is best for the purchase of a new fire engine for the Washington Township Fire Department?

BACKGROUND AND SIGNIFICANCE

To complete its mission effectively, the fire service must purchase and utilize many capital assets. Fire apparatus are among capital assets that wear out or become obsolete and must be replaced. The purchase price for a customized fire engine can easily be as much as $280,000. A true capital cost for the purchase must include all the expenditures incurred in the acquisition of the asset. The cost of financing the purchase of the fire engine must be added to determine its true capital cost. There are costs even if accumulated funds are used for the purchase of an asset, such as interest that may have otherwise been earned. Just as fire service administrators must consider the costs, benefits and disadvantages related to the asset itself, they must also consider the costs, benefits and disadvantages related to the financing of the asset. Such is the case at the Washington Township Fire Department.

The Washington Township Fire Department is a 134-member fire department, located on the north side of Indianapolis in Marion County, Indiana. The department provides fire prevention, fire protection, rescue, hazardous materials and emergency medical services to a 35 square-mile suburban jurisdiction with a population of more than 150,000 residents. These services are provided from five fire stations, a support service building and an administration headquarters located throughout the township.

The township is governed, and the Fire Department Budget approved by an elected Trustee and a seven member Township Advisory Board. The 2000 Fire Department Budget is $10,432,123 with roughly 90% of the budget dedicated to professional services. Another $933,973 is available for capital purchases of buildings and equipment in the Fire Department Cumulative Fund (Washington Township, Marion County 2000 Fire Protection Budget). The working draft of the 2001 Fire Department Budget calls for operating funds of $11,275,145 and a cumulative fund of $845,050 (Washington Township, Marion County 2001 Fire Protection Budget Worksheet).

As part of a five-year plan, a fire engine has been specified and a bid from a manufacturer accepted (Washington Township Five Year Plan, 2000-2004). A means for funding the purchase has not yet been decided. Normally, capital purchases are made from the funds accrued in the Cumulative Fire Fund. The department has other capital asset needs. If the fire engine is purchased with cash on hand, the purchase of other assets will be deferred. Cumulative funds can also be invested. If the funds are used for the purchase of the fire engine, the department will forfeit interest that could be gained from them.

The author of this report is the Chief of the Washington Township Fire Department and a student in the Executive Fire Officer Program. He must make a recommendation to the elected Township Trustee and her Advisory Board on the most appropriate means of funding the purchase of the new fire truck. In the Financial Management Course of the Executive Fire Officer Program, students are shown there are alternatives to funding capital assets. The practical significance of this research is that it will be used to make a decision regarding the funding of the Washington Township Fire Department's purchase of a new engine. This project is also significant in that it may be used as a decision making model for other fire service administrators concerned with the funding and financing of capital asset purchases.

LITERATURE REVIEW

The starting point for the literature review on financing alternatives was a search for information on leasing. *Leasing* is a process whereby the owner of a particular *asset (lessor)* enters into an *agreement (lease)* with the *user (lessee)* for the latter to use the asset for a specific period of time. The lessee pays a certain amount *(lease payment)* to the lessor for the use of the asset. Almost without exception, any type of equipment that a business can purchase, it can also lease (Clark, Hindelang, and Pritchard, 1979).

It is important to note that there is a difference between the true lease and the lease-purchase of a vehicle. A lease in simple terms is a rental agreement. In consideration for money paid, you are allowed to use an item for a definite period of time. At the end of the period the item is returned to its owner. The lease-purchase involves some form of purchase at the end of the lease period. A municipal lease is a financing tool that allows governmental entities to acquire essential equipment at low, tax-exempt interest rates. With lease-purchase there is ownership in the asset. The municipal lease is also sometimes called an installment sales contract or lease with option to purchase. The equipment being lease financed is titled in the name of the governmental entity, and payments are composed of principal and interest. With each payment the entity's equity in the equipment increases. The lease agreement is structured as a series of one-year renewable obligations, subject to the entity's ability to appropriate funds for continued lease payments. Because of this, payments are considered a current expense and not a debt obligation (Carter, 1999).

In each fiscal year, the fire department must appropriate funds for the amount of that year's lease-purchase payments. This may benefit the department because the payments constitute a current expense and are not subject to statutory debt limitations; also, voter approval is usually not required in most states. The organization can choose to prepay the outstanding principal balance and terminate the agreement (Fire Economics, 2000).

Leasing is an alternative to purchasing. Since the lessee is obligated to make a series of payments, a lease arrangement resembles a debt contract. The advantages cited for leasing are often based on a comparison between leasing and borrowing funds on an intermediate term (maturity between 1 and 10 years) or long term (maturity greater than 10 years) basis. Many lessees find true leasing attractive because of its apparent low cost. This is particularly evident where a lessee cannot currently use tax benefits associated with equipment ownership. The principal advantage to a lessee from using a true lease to finance an equipment acquisition is the economic benefit that comes from the indirect realization of tax benefits that would otherwise be lost (Fabozzi, Nevitt, 1985).

What factors allow firms to reduce their cost of capital by leasing? If lessors have a lower cost of capital than the lessee, a higher income tax rate or can get a better salvage value for used equipment, this favors a lease arrangement. People used to think leasing was for those who could not get credit or raise the down payment to buy. That is still true, but leasing is also used to find competitive rates as a result of the above listed factors. Leasing should not be overlooked when the addition of assets is being considered. It can result in financing at a low rate and reduce a company’s cost of capital (Fraley, 1998).

Changes in the laws of many states have made it possible for municipalities to use tax-exempt municipal lease-purchases to finance new equipment acquisitions. This allows a financial institution to purchase the contract that a municipality enters into to buy equipment over time. This contract is tax-exempt, making ownership of the paper desirable to investors Lynch, Marshall, (1988). A lease-purchase agreement by a municipal entity is an investment that can be made by banks or individuals with the interest portion not being taxed Bohmke, (1991). Interest rates are low for tax-exempt municipal lease-purchase agreements because financial institutions do not have to pay taxes on the interest they earn this way. Increasingly, financial investors are discovering that the municipal lease delivers higher tax-exempt yields than comparable bond investments, with virtually no increased credit risk. As a result, municipal leases are becoming one of the most sought after tax-exempt products by institutional investors today (Fire Economics).

So how much does tax-exempt status save you? The current tax-exempt rates for leases range from 4 to 7 percent. True lease rates are usually calculated at prime plus a factor added by the leasing company. The prime rate is currently 7.75 percent (Carter).

Large capital acquisitions are difficult to fund in times when money is tight. A simple funding option with a greater chance of success is a tax-exempt municipal lease-purchase. A tax-exempt municipal lease-purchase is not like renting or signing a conventional lease. It is an installment purchase with payment terms that can match the useful life of the asset being purchased. At the end of the lease period the asset is fully owned by the lessee. Tax-exempt municipal lease-purchase financing is simply a technique that allows a fire department to finance equipment and real property at a dramatically low interest rate and make periodic installment payments (Fire Economics).

All public fire departments qualify for tax-exempt status. Obtaining lease-purchase financing is usually rapid and less complicated than bonds and other financing. If a fire department is seeking to purchase four new fire engines, it can specify the equipment, negotiate a purchase price and then fill out an application for a lease-purchase agreement with an institution that offers this type of financing. In as little time as four to six weeks the institution will structure a tax-exempt municipal lease-purchase that conforms to local laws. In most cases 100-percent of the purchase can be financed (Fire Economics).

Whether municipal lease financing is right for your fire department depends upon your needs. Departments in the following situations may benefit from a lease-purchase. The department urgently needs new apparatus, a building or other expensive equipment, but does not have the funds because of budget restrictions or other expenses. Maintenance costs on old equipment indicates that it would be more cost effective to purchase new equipment, but cash or capital reserves are limited. The department has always paid cash for apparatus, buying a single piece of equipment at a time, but the community could be better served by the purchase of multiple equipment. This may be necessary to accommodate the department's changing role in the delivery of services, such as an increased demand for emergency medical services. Cash in today's market may earn interest equal to or in excess of interest paid on a municipal lease. It is preferable to limit debt and preserve borrowing capabilities for other expenditures. Or the department wants to hedge against inflation and avoids paying more for apparatus in the future by purchasing now (Fire Economics).

The *Fire Economics* article expanded on the idea that lease-purchase agreements are a useful application to hedge against inflationary costs rather than delaying purchases until the necessary cash is available. The article says that the impact of inflation on fire engine costs may be outpacing the cost of leasing. Due to the changing technology and the increasing costs of materials, truck costs have been increasing approximately five-percent per year. In five years the cost of a $180,000 fire truck would inflate by $49,730. The approximate interest cost on a typical five-year tax-exempt lease would be $24,856. The potential savings gained by leasing the truck now would be $24,874 (Fire Economics).

The literature review found many other authors who agreed on the benefits of leasing. From the viewpoint of the lessee, there may be many advantages to leasing versus purchasing. Naturally, a primary concern is cost. The cost of the lease may or may not be more than the cost to purchase and may differ among lessees. Aside from the financial question, many other considerations become important in deciding whether to lease or purchase.

1. Leases provide an alternative source of obtaining equipment for firms that have limited capital budgets.
2. Equipment may be leased over a longer period than would be available through conventional financing.
3. Leases are quoted at fixed rates, which avoid the risks associated with short or intermediate-term financing and refinancing.
4. Leasing may conserve existing sources of credit for other uses and usually does not restrict a firm's borrowing capacity.
5. Leasing may provide 100% financing, since down payment may not be required.
6. Leasing is quick and flexible as compared to raising funds and making capital expenditures.

7. The total acquisition cost, including sales tax, delivery, and so on, may be included in the lease payments.
8. Bookkeeping may be simplified since lease payments are constant over the term of the lease.
9. The entire lease payment is tax-deductible to the lessee.
10. Leasing avoids underwriting costs (Clark, et al., 1979).

In addition to other benefits many of the authors in the literature review cited the same leasing advantages as did Clark, Hindelang and Pritchard (1979). Lease financing conserves working capital. A lease typically, requires no down payment and, unlike a bank loan, no compensating balance. Yet, since it may be argued that leases are merely other forms of debt, the basic issue is whether leases provide the financing more cheaply than other forms of borrowing. If leasing will reduce your cost of financing, lower your tax bill, and permit you to acquire more assets than your resources would ordinarily allow, then what are the dollar and cents payouts on those advantages? Don't let someone else figure the cost of leasing - do it yourself (Clark, Elgers, 1980).

There are certain other pluses involved in leasing. You can maintain a newer fleet. You can create an expense budget item for lease payments. You will not have to mortgage the future. Your costs will remain constant through the period of the lease. If the item is not working well, at the end of the lease you can return it (Carter). When a firm owns equipment, it faces the possibility that in the future the asset may not be as efficient as more recently manufactured equipment. If the owner decides to replace the equipment, then its sale may only produce a fraction of its book value. By leasing the owner may avoid the risk of obsolescence and asset disposal (Fabozzi, Nevitt).

Other positive reasons for leasing are: minimal out of pocket expenses, initial transaction can be completed quickly, a lease is based on ability to pay, can be structured to purchase the item at the end of the lease, or can be structured to return or trade the item for a newer model at the end of the lease. Although leasing affords the possibility of keeping a newer fleet, the organization should understand that if a particular piece of equipment is paid off and working well, the funds used for its lease can be set aside for future use. In this way a lease can be used to create room for future growth (Carter).

One of the most important advantages to leasing is flexibility. Lease-purchases offer a more realistic opportunity to adopt contract payments suited to the organizations budget realities. All lease-purchase costs are covered in the lease payments and lease-purchase payments can vary from three to ten years. There is also the advantage that no debt is created with lease payments made on an annual basis. This is important to municipalities whose bonded indebtedness may already be heavy. There are no deposits, down payments, or closing expenses. Payments are fixed for the life of the lease with the first payment due on receipt of the equipment. There are no additional closing costs in a tax-exempt municipal lease-purchase transaction, and there is no underwriter's discount. With a lease-purchase, broader, long-term needs can be satisfied more easily than when making a lump sum payment. You do not have to cut needed items because the payments will be spread out over five to eight years (Lynch, Marshall).

Managers use lease-purchases financing to efficiently manage cash flows. They provide the opportunity to own and use an asset immediately, while distributing payment over its useful life. A lease can be an important component in a capital improvement program by offering the opportunity to preserve cash for projects where leasing is not an option. It also allows for standardization by allowing for the purchase of multiple pieces of equipment at one time instead of in phases over several years (Carter).

Programs can be established to match a community's cash flow and revenue or fee schedules to its payment requirements. A typical lease can be initiated, processed and funded in 30 to 60 days. In addition to the advantage of paying for an asset over its reasonable life, the resulting cash flow improvement also is worth considering. The lessee can have the asset and retain a substantial cash reserve (Bohmke).

When considering a lease-purchase agreement you work with the same people as you did when using standard financing. This includes manufacturer's representatives, distributors and dealers. There are also companies who specialize in municipal lease-purchases. Many fire departments choose to work with a reputable municipal lease-purchase company because unlike a manufacturer, who offers only one finance program, a knowledgeable lease-purchase company can offer several payment options and a variety of other services (Lynch, Marshall).

The following are some of the primary advantages to leasing:

1. The cash flow approximately matches the item's useful life.
2. The item is paid for from budgets, which are based on revenues derived from the citizens who are benefiting from the asset.
3. Urgently needed equipment requiring substantial sums, in excess of available cash, can be acquired sooner.
4. The financing lease is not considered as debt for reporting or balance sheet purposes.

5. Usually, it is not necessary to obtain public approval before entering into a lease arrangement.
6. The lease transaction paperwork is substantially streamlined compared to that of a bond or similar debt transaction.
7. Usually, a lease can be prepaid if financial situations change (Bohmke).

Although the National Fire Protection Agency (NFPA) updates the minimum standards for fire apparatus every three years, many fire departments have not put sophisticated apparatus to work in their communities because the do not have enough money. In extreme cases, municipalities continue to pay long-term bonds on obsolete fleets that no longer meet Insurance Service Office (ISO) requirements. In other cases, creditors will not float bonds for equipment because the municipality is too debt laden. For these reasons, many fire departments around the country are taking advantage of leasing to acquire apparatus (Fire-Rescue Magazine, 2000).

Equipment leases are relatively simple to complete and allow the municipal entity to implement buying decisions quickly. In comparison, bond issues are more costly, complex and time consuming. Lease-purchase financing can even be cheaper than paying cash, as the purchase may be delayed allowing inflation to outpace the traditional savings of paying in cash (Carter).

There are variables common to all leasing situations and these must be identified and measured whatever the framework of analysis. The key variables in lease analysis, the focus of any lease negotiation, include the following:

1. Depreciation: The tax effects of depreciation represent an advantage of ownership that is lost under leasing. Depreciation represents

tax savings that tend to swing the decision in the direction of ownership. A lessor could, however, take advantage of the tax benefits and pass them along to the lessee by means of reduced loan payments.

2. Obsolescence: High rates of obsolescence increase the risks of ownership. This tends to make leasing a more attractive alternative.

3. Operating and maintenance charges: These represent an expense of ownership. If the lessor will assume these costs the situation makes leasing a more attractive alternative.

4. Salvage and residual values: Residual values are an advantage of ownership that may be lost under leasing. High salvage values lower the costs of ownership but salvage value is highly uncertain.

5. Discount rate: Leasing analysis uses cash flows, and these extend over several fiscal periods. The cash flows have to be discounted for the time value of money and for risk.

6. Timing of lease payments: The timing of lease payments, whether they are payable annually, semiannually, quarterly or monthly may affect the decision.

7. Tax effects: The implications of taxation on cash flows derived from capital investments must be considered (Clark, et al.).

Consider that the organization in its planning cycle has decided to purchase a fire truck as part of its overall capital assets plan. A capital asset investment analysis must then be implemented into the overall procurement strategy (Oliver, 2000). The question of leasing versus ownership represents a long-term financial planning decision, and must be considered together with both capital budgeting and financial structure decisions. In some cases the asset to be leased or purchased will represent a mandatory investment; the project must be accepted and the only decision is whether to acquire the asset by purchase or lease. In such cases, lease analysis is essentially a financing decision, and we attempt to evaluate the lease against alternative ways of financing the asset. The financial analysis of lease versus purchase is quite simple: determine the yearly cost of each, discount to present value, and make the decision based on minimizing the present value of the cash outflows (Clark, et al.).

A capital investment is similar to a bank loan. When a bank makes a loan, it expects to recover the principal amount plus interest. When a company makes a capital investment, it expects to recover the initial cash invested plus some additional cash in the future. Capital investments usually involve large amounts of money. The investments may commit the company to a certain course of action over a considerable period of time and therefore can affect the company's flexibility to adapt to new market conditions or technologies. The long-term impact of capital investment decisions requires that these projects be analyzed in the context of the company's overall strategic direction and long-term financial objectives (Oliver).

No matter how equipment is financed, budgets do not always cover everything. You can pay cash, but this is something you must decide now if you plan to purchase new apparatus in the next five years, and chances are you may still need supplemental help at the time of purchase. Money that is properly invested can bring a helpful stream of interest. Bonding and borrowing are also forms of financing that have been used. These two tools usually fall within a government set limit so officials will not borrow more money than can reasonably be paid back. The limit is usually some percentage of the total value of the taxable property in a community. Still there are unexpected needs caused by accidents, rapid community growth, or program imperatives from government officials that may require equipment purchases on short notice. This requires flexibility not usually found in standard government financing schemes (Carter).

Often a fire department will consult an independent financial group for guidance on how to proceed with leasing. Some manufacturers work with financial organizations to provide leasing services for their products. Sometimes a lease is not the most efficient way of financing a project. A situation might exist where one of the following conditions applies. There is broad general support and a majority would vote for a general obligation bond to accomplish the program. When the size and nature of the program would permit the economically favorable issuance of certificates of participation. When the program funding is such that either the funds available or the ultimate term of the program are not readily identifiable and the economics are difficult to define. In the first two situations, general obligation bonds or certificates of participation might provide a better alternative. In the third case, the entire matter should be reconsidered to clarify a source of payments or a definite need for the program (Bohmke).

Fire-Rescue Magazine examined how and why a handful of fire departments addressed fleet replacement with leasing. Although fire services share the common concern of public safety, each community's equipment needs and financial dealings must be uniquely tailored. So the magazine attempted to provide specifics on lease length, interest rates on amounts borrowed, and types of leases for each department profiled. *Fire-Rescue* profiled five fire departments; the first was Elk Grove, California.

The Sacramento suburb was experiencing phenomenal population growth of 8 to 13 percent annually. Millions in bonds had been approved to build additional schools. Rather than compete for money, the fire department leveraged a $270,000-a-year commitment from Elk Grove to fashion a lease with Pierce Manufacturing's financial agent, Banc One. The department replaced four apparatus without waiting for all of the money to be in the bank. They added $420,000 in loose equipment to its $1.8 million lease in the 4 percent interest range. The community's $270,000 commitment, with a 3 percent clause for inflation, covers the annual lease payment, with money left over to accrue compound interest yearly.

The Halfway Volunteer Fire Company in Halfway, Maryland built a new firehouse at a cost of $1.8 million so that the county's capital budget was maxed out. Bonds and conventional loans were out of the question. The county's general budget could handle a modest annual payment. The fire department used a tax-exempt municipal lease for an $833,000 aerial and avoided the need for voter approval or competitive bidding. Despite lending about three points below prime, the leasing agency makes its profit by taking depreciation on the equipment. The bank can also consider interest earned as a federal tax deduction and subtract it from their earnings because the title is held by the fire department. Halfway pays less than 5 percent on its 12-year loan.

In Magnolia, Texas, the Magnolia Volunteer Fire Department was convinced that seed money for 12 vehicles would standardize operations, solve water problems and lower the ISO grade from a nine to a four. Such a grade would save property owner's money by reducing insurance premiums. Magnolia leased their fleet with a 10-year note for $4 million at 5.25 percent interest. The lease allows Magnolia to buy the fleet at the end of the lease for a $500,000 balloon payment. They also have the option to extend the lease, refinance the lease, and sell the vehicles to cover the balance of the lease or convert the lease to purchase for the vehicles' fair market value.

After voters defeated a bond issue for the purchase of new equipment, the Sparks Fire Department in Sparks, Nevada turned to leasing to acquire its new fleet. The department used a lease-purchase agreement to replace its fleet. They borrowed $3.3 million over 10 years at 5.08 percent without the need for voter approval.

All city mangers are not sold on the idea of leasing. In Springfield, Tennessee, they can get a good rate on bonds, less than 7 percent. Their philosophy is to pay a little extra for equipment, have it custom made, buy it and take care of it. There is no need to keep turning equipment in. In their case, the Springfield Fire Department will purchase a single fire engine for $250,000, will issue a five to ten year municipal note, and expects to pay between 6 and 7 percent to the bank.

The editors of *Fire-Rescue* offered alternative financing options for the Springfield Fire Department's $250,000 purchase. The first option is the municipal note/bond at 6 percent for five years. This results in five annual payments of $53,000 or a total of $265,000. This is the lowest overall cost for purchase.

Option two is a municipal lease, at 6 percent for five years. The department would spend $65,000 annually or $325,000 to lease the vehicle. This would allow them to purchase the vehicle in a short period of time and without the approval of a bond.

Option three is a lease from a manufacturer guaranteeing a trade-in value. For this the department would pay $27,000 annually for ten years (total cost to the community $270,000) and receive a guaranteed trade in value of $50,000 for the vehicle.

The benefit of this option is the lowest possible monthly lease payment and the guaranteed residual value.

Lease-purchase from an apparatus vendor is the fourth option. Typically for a $250,000 fire engine a vendor would charge approximately $29,375 a year on a standard ten-year lease. This results in a total cost of $375,000, but you own the vehicle outright at the end of the lease. The last option is purchasing from a bank. The fire engine is purchased for $250,000 for five years at 10 percent a year. For $55,000 a year, Springfield would spend $315,000 at the end of the lease period. This is the lowest purchase payment possible without going to the voters (Fire-Rescue).

In summary, the literature review found that there is much data concerning leasing as an alternative financing method for the purchase of fire department capital assets. Information on leases, lease-purchases, and tax-exempt municipal leases is available. The advantages of leasing compared to borrowing or paying cash is discussed. Finally, examples of other fire department organizations that used leasing to finance the purchases of capital assets, and their reasons for doing so, are cited.

PROCEDURES

The purpose of this research project is to determine how decisions concerning financing options, specifically leasing versus borrowing or using cash, are made so that these principals can be applied to determine the best option for Washington Township's purchase of capital assets. The research procedure used in the preparation of this paper began with a literature review at the Learning Resource Center at the National Emergency Training Center, Emmitsburg, Maryland. Additional literature research was conducted at the Indianapolis Public Library in Indianapolis, Indiana.

In order to answer the first two research questions, the focus of the literature review is to find as much information as possible on leases and the advantage of leasing as compared to cash purchase or borrowing. Research is also conducted for information on how organizations make decisions concerning leasing versus other financing alternatives for the acquisition of capital assets.

The literature review reveals much information on leasing, its advantages and factors to be considered when evaluating leasing versus other financing options. This information is examined to see if there are common advantages to leasing cited in the literature, and whether there are common guidelines to follow when considering leasing as a financing option.

In order to answer the third research question; what is the best financing alternative for the Washington Township Fire Department, those advantages and guidelines are then examined to see how they apply to the Washington Township Fire Department. This leads to an additional research procedure. One of the most cited benefits of leasing is cost savings. The most cited guideline for comparing leasing versus other financing options is to perform a cost analysis. The Washington Township Fire Department ordered a fire engine and will take delivery in year 2000. A cost analysis of leasing, borrowing or paying cash for the fire engine is included. Public-Finance.com was contacted to obtain the current interest rate for a tax-exempt lease-purchase. Washington Township cumulative funds are maintained in a sweep account at Fifth Third Bank of Cincinnati. The bank was contacted to determine the rate of return on the balances maintained there. Washington Township borrows funds using tax warrants.

The most recent tax warrant was obtained from NatCity Investments, Incorporated. They were contacted to determine the current interest rates for borrowed funds.

The literature review also finds examples of fire departments that used leasing to fund capital purchases. Those examples are examined to see if there are common factors that make leasing attractive to those agencies. Those conditions are also compared to the situation at Washington Township.

The literature also indicated that the purchase of any single capital asset should be considered in the context of the overall financial picture and fiscal strategy of an organization. Two other research procedures are performed.

First, Washington Township financial documents are examined. Annual Financial Reports from 1995 through 2000 are inspected to determine what financing options for capital purchases have been used in the past. The Washington Township, Marion County 2000 Fire Protection Budget is reviewed to determine what financial resources are currently available and what other obligations must be funded. The Washington Township, Marion County 2001 Fire Protection Budget Worksheet and the Washington Township Five Year Plan, 2000-2004 are also reviewed to decide what capital asset purchases will require funding in the future. Second, the Washington Township Trustee, Gwen Horth, is interviewed to find out what financial strategies for capital purchases have been followed in the past and why. The interview is also conducted to determine Trustee Horth's fiscal philosophy, as this factor will ultimately decide the course the township takes in acquiring capital assets.

This research is limited in that before deciding to purchase an asset, an organization should conduct a cost benefit analysis to determine whether the asset should be purchased. The financing cost of the asset is just a part of the overall cost to the company. This project would be stronger if a cost benefit analysis for the fire engine had been completed. Instead the need to purchase the fire engine is assumed and the cost benefit analysis is left to another project.

RESULTS

What does a fire department executive need to know about leasing? A lease in its simplest form is a rental agreement. The lessee pays the lessor for the use of an item for a certain period of time. A lease-purchase involves some kind of purchase of the asset at the end of the lease period. A municipal lease is a financing tool that provides governmental entities low interest rates because it is tax-exempt. With a tax-exempt lease-purchase there is ownership in the asset. A municipal tax-exempt lease-purchase agreement is an investment a bank can make without paying taxes on the interest payments made by the lessee. They pass these tax savings on to the lessee by providing low interest rates. Current rates for tax-exempt leases range from 4 to 7 percent. This represents substantial savings over standard leases, which are based on the prime rate, plus a factor added by the financial institution. The current prime rate is about 7 ¾ percent. So the tax-exempt lease offers a substantial savings.

What are the primary advantages of leasing? The cost savings resulting from lower tax-exempt interest rates is the principal reason referred to for financing capital assets with leases. The savings advantages from leasing are most often based on a comparison to borrowing funds. An organization may also reduce costs by leasing now rather than purchasing later because of inflation. In this case if the asset is leased today, the amount paid in interest for the term of the lease may be less than the price increase on the asset over the same term. It can be less expensive to lease now than to pay cash for the same asset five years from now. Even if an organization has cash on hand for the purchase of equipment, it may still be cheaper to lease. This is because in some cases the cash can be invested and earn interest greater than the interest paid on the lease.

Obsolescence is given as a reason for leasing. This is referred to in two different ways. In the first example, if equipment, because of changing technology will become obsolete in a short period of time, ownership may not be desirable. Leasing the equipment may be an alternative. Computers are an example of the type of asset. In the second case, a department may have old and outdated apparatus but lack cash or is too debt laden to purchase outright. If the department can raise an annual payment, leasing to replace the outmoded fleet is an option.

Flexibility and improved cash flows are also cited as advantages of leasing. Lease-purchases offer more opportunities to adopt payments to an organization’s budget realities. Lease-purchase payments can vary from three to ten years. Lease payments made on an annual basis do not create additional debt. This allows a company to preserve cash or debt capacity for other projects. With a lease, long-term needs may be more easily addressed than with a cash payment. Options, which could be added to an asset to make it more efficient, may be cut to reduce costs when paying cash. This may not be necessary if the asset is leased and the payments are spread over six to eight years.

Although briefly alluded to in the literature review, a compelling reason to consider leasing is related to the issue of equity. Leasing costs are paid from budgets based on revenues derived from the citizens who are benefiting from the asset over the course of its usable life. This is not the case when available cash is used for the purchase.

The examination of the fire departments, that addressed their fleet replacements by leasing, yielded several common factors. The departments lacked the resources to borrow funds or to pay cash. Either because of growth, obsolescence or standardization the departments needed to replace multiple pieces of equipment or a high dollar apparatus such as an aerial. In each case they were able to raise sufficient moneys to pay an annual payment and were not required to seek voter approval.

Table 1, below, was constructed to provide a cost analysis of the financing alternatives available to the Washington Township Fire Department. The price of the American La France is $270,000. The interest rate available on a seven-year, tax-exempt, lease-purchase agreement with Public Finance.com is 5.79 percent. The interest rate to borrow from NatCity Investments using a tax warrant is 4.55 percent. Without taking in the cost in lost interest earnings from spending cash, the cost of the lease is $62,241 and the cost of borrowing is $45,784. In this example, cash is the least expensive means for acquiring the fire engine, followed by the tax warrant, then leasing.

In Table 2, the potential interest earnings on the cash expended are considered and a different picture emerges. Cumulative fund money is currently invested in a sweep account earning 6.3 percent interest. If the $270,000 is left in the account it will return $144,092 after seven years. In which case, in terms of its potential earnings, paying cash is the most expensive funding option.

In Table 3, the figures on the chart show the cost of deferring the purchase of the fire engine due to inflation. The price of the truck would have to increase by 7 percent annually to outstrip the earnings of the funds in the sweep account. However, if the department did not have funds invested and was deferring the purchase of the truck rather than borrowing or leasing to purchase it now, then an inflationary rate of 6 percent would outpace the cost of leasing and an inflationary rate of 5 percent would outpace the cost of borrowing.

Table 1
Cost Analysis of Financing Options

Public Finance.com Lease	Interest Rate 5.79%	NatCity Investments Finance	Interest Rate 4.55%	American La France Purchase	Cash Purchase Price
Term	$270,000	Term	$270,000.00	Term	$270,000
1	$47,463	1	$45,112	1	$
2	$47,463	2	$45,112	2	$
3	$47,463	3	$45,112	3	$
4	$47,463	4	$45,112	4	$
5	$47,463	5	$45,112	5	$
6	$47,463	6	$45,112	6	$
7	$47,463	7	$45,112	7	$
Total	$332,241	Total	$315,784	Total	$270,000
Cost of Contract	$62,241	Cost of Loan	$45,784		

Table 2
Investment Earnings

Term	Treasury Bills 6.15%	Sweep Account Term	Fifth Third Bank 6.30%
	$270,000		$270,000
1	$286,605	1	$287,010
2	$304,231	2	$305,092
3	$322,941	3	$324,312
4	$342,802	4	$344,744
5	$363,885	5	$366,463
6	$386,264	6	$389,550
7	$410,019	7	$414,092
Net Gain	$140,019	Net Gain	$144,092

Table 3
<u>Inflation</u>
<u>Costs</u>

2000 Purchase Price	$270,000	$270,000	$270,000	$270,000
	4% increase	5% increase	6% increase	7% increase
Year 1	$280,800	$283,500	$286,200	$288,900
Year 2	$292,032	$297,675	$303,372	$309,123
Year 3	$303,713	$312,559	$321,574	$330,761
Year 4	$315,862	$328,187	$340,869	$353,915
Year 5	$328,496	$344,596	$361,321	$378,689
Year 6	$341,636	$361,826	$383,000	$405,197
Year 7	$355,302	$379,917	$405,980	$433,561
Increase	$85,302	$109,917	$135,980	$163,561

What is the best funding option for Washington Township's purchase of the new fire engine? The research found that reduced costs, asset obsolescence, flexibility, improved cash flows, and a more equitable distribution of tax revenues over the useful life of the asset, are advantages of leasing. Other departments use leasing because they lack the resources to borrow or pay cash. Most of those departments need to make multiple equipment purchases to standardize their fleets or provide protection to a rapidly growing community.

Washington Township's fleet of fire apparatus is not obsolete. With the purchase of a fire engine this year and another in 2001, the oldest front line pumper will be seven years old. Nor is it expected that changing technology will necessitate their replacement, rather the trucks are expected to be useful for a minimum of 15 years. There are sufficient funds available to purchase the capital assets needed for the next several years, so flexibility and cash flows are not compelling factors. The department does not lack sufficient resources to pay cash or borrow funds. The purchase of multiple fire apparatus is not necessary. The factors that are most compelling for the Washington Township Fire Department are cost and equity.

The cost of borrowing funds to purchase the fire engine is less than the cost to lease. It might appear that paying cash would reduce the purchase cost further. The wild card here is that the interest earnings from the cash in the sweep account are outpacing the interest costs of borrowing. The department should use a tax warrant to finance the purchase of the fire engine and leave the cash invested in the sweep account. Should the financial climate change and the return from the investment drop below the interest paid on the warrant, then the cash should be used to pay it off. This will also be more equitable for the taxpayers. Tax revenues earned after the engine is placed in service and collected over the first several years of its useful life will be used to pay for the truck. The people who benefit from the fire truck's purchase will help pay for it.

DISCUSSION

Many authors conclude and the study results reveal that there are several advantages to leasing as compared to borrowing or paying cash. The primary advantage cited is reduced cost. This is not true in Washington Township's situation, where a tax warrant can be obtained at a lower interest rate than a tax-exempt municipal lease-purchase agreement. However, the research also found that cash reserves can often be invested at a return rate that exceeds the interest paid on a lease agreement. This proved to be true for Washington Township, where the department's cumulative fund account earns 6.3 percent compared to the 5.79 percent rate of interest on an available lease-purchase contract. Still, if the department chooses to finance, borrowing appears to be a better option than leasing.

Obsolescence, flexibility and cash flows are also cited as benefits to lease in the research. Again, this is not the case at Washington Township. The fire engine purchased will not become obsolete or outdated over the next several years but is expected to be useful for a minimum of 15 years. The department has sufficient cash resources within its cumulative fund to purchase the truck, and enough credit capability to borrow funds. This is true for the purchase of the fire truck in 2000 and for other needed capital assets as projected over the next five years.

Fire-Rescue Magazine examined why several departments used leasing to address their fleet replacement. They also cited one department that chose not to lease (Fire-Rescue). There are several common factors in the examples where the fire departments chose to lease. A need to replace several pieces of equipment because of growth, a desire to standardize the fleet, a wish to lower the department's ISO rating or obsolescence. The departments did not have available cash and could not acquire funding through conventional loans. Each was able to find money necessary to make an annual payment on a lease agreement.

The Washington Township Fire Department does not need to purchase multiple apparatus. The fleet meets the service needs of the community and is not obsolete. The cumulative fund and conventional financing are available for the purchase of needed capital assets. The situation at Washington Township most closely resembles the example of the department cited that chose not to lease, Springfield, Tennessee. In the Springfield illustration, the department purchased a single engine for $250,000. They were able to get a good rate on a bond. Their philosophy resembles that of Washington Township. Pay a little extra for equipment, have it custom made, buy it and take care of it.

The study touched on the political climate and its effect on the direction an organization will take to finance capital asset purchases. The study found that leasing is desirable because it does not require voter approval. The equitable distribution of tax revenues over the useful life of an asset is also cited as an advantage of leasing. But there is only a brief reference to the political climate, the fiscal principals of governing authorities and their impact on financial decisions. It is alluded to in the Springfield, Tennessee case, where the city manager is not sold on leasing. If the political decision-makers can not be sold on the leasing option, then a department has little chance of acquiring assets in this way.

At Washington Township, the elected Trustee is averse to using debt for the acquisition of equipment. She believes that the department should “pay as it goes” (G. M. Horth, personal communication, July 10, 2000). Also the Township Advisory Board has shown a propensity to view money available in the cumulative fund as a surplus. In fact, in 1999 the Board voted to reduce the cumulative fund tax rate by one-cent per $100 of valuation. This reduced the amount accumulated in the fund by approximately $150,000. So while the research indicates that the Township should finance the purchase of the new fire engine and allow the cumulative fund account to continue to collect interest, the political reality is that the purchase will be made from cash on hand.

RECOMMENDATIONS

The Washington Township Fire Department traditionally uses cash or conventional financing to purchase capital equipment. Leasing is not utilized to acquire assets. As this research indicates, leasing is not the best option for the purchase of the new fire engine, this year. This does not mean that the leasing option should be dismissed entirely. The financial environment changes. A cost analysis of funding options shall be performed anytime a capital purchase is made.

While obsolescence is not an issue for the fire truck, it may be an issue for other fire department equipment. The department has struggled to upgrade its computers. In an effort to keep up with the rapid changes in computer technology, hardware is purchased every year. Still, the organization finds itself with a percentage of its computers outdated. The old computers have little resale value and are usually donated. The department will explore the idea of replacing all of their computers through a leasing arrangement. In this case, ownership is not desirable and the annual expenditure for leasing several computers may be the same as purchasing a lesser amount.

Leasing should also be considered for the replacement of the department's fleet of ambulances. The department has five ambulances and as part of the five-year plan will attempt to either purchase or refurbish an ambulance each year. Prior to 2000, the last ambulance was purchased in 1995. The high rate of EMS responses in the township leads to a useful life span of five years for an ambulance. Ambulances have a residual value after five years. The organization will conduct a cost-benefit analysis of leasing ambulances in the future.

There is a final area where the department will consider leasing as an alternative. In its five-year plan the department intends to purchase an aerial truck in 2004. The department will also conduct a cost analysis of this acquisition to determine if leasing the aerial this year will serve as a hedge against price increases due to inflation.

The fire department must continue to discuss financial options with policy makers. It is important that the Township Trustee and Board be kept abreast of the financing options available for equipment purchases. Each time assets are purchased a cost analysis of financing options will be presented to the Trustee and the Board so that they may make a well informed choice.

There is an abundance of information available on leases, lease-purchases and tax-exempt municipal leases. Fire department executives must familiarize themselves with these financial tools so that they may make the best decisions for acquiring needed capital resources. There are advantages to leases, and situations where leasing can assist fire departments in obtaining the equipment they need to provide for public safety. Remember though, that while fire services share the common concern of public safety, each community's equipment needs and financial dealings must be uniquely tailored. Do not trust the assertions of financial institutions that claim tax-exempt municipal lease-purchases are a panacea for all capital purchases. Leasing is not the right solution for every situation. Neither is paying cash or borrowing. Do your homework, calculate the benefits, and figure the costs, then you can make an informed decision on financing alternatives.

REFERENCES

Author. (2000, June). To lease or not to lease? Fire Rescue Magazine, 61-65.

Author. (2000, Winter). Is tax-exempt lease-purchase financing right for your department? Fire Economics, 4-5.

Bohmke, M. (1991, March). Using municipal leasing as a modern finance tool. Fire Chief, 36-38, 107.

Carter, H. R. (1999, September). The lease of your concerns. Fire Chief, 50-53.

Clark, J. J., Elgers, P. T. (1980). The lease buy decision. New York. The Free Press.

Clark, J. J., Hindelang, T. J., Pritchard, R. E. (1979). Capital Budgeting Planning and Control of Capital Expenditures. Englewood Cliffs, Prentice-Hall, Incorporated.

Fabozzi, F. J., Nevitt, P. K. (1985). Equipment Leasing. Homewood. Dow Jones-Irwin.

Fraley D. L. (1998). Financial Decision Making a CPA/Attorney's Perspective. Central Point. The Oasis Press.

Lynch, T., Marshall, J. (1988, February). Let's talk lease-purchase. Fire Command, 26-28.

Oliver, L. (2000). The Cost Management Toolbox. New York. American Management Association Publications.

Washington Township Fire Department. (2000, January). Washington Township 2000 Fire Protection Budget. Indianapolis. Author.

Washington Township Fire Department. (2000, July). Washington Township 2001 Fire Protection Budget Worksheet. Indianapolis. Author.

Washington Township Fire Department. (1999, July). Washington Township Five Year Plan, 2000-2004. Indianapolis. Author.